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FOURTH ANNUAL REPORT

OF THE

DAIRY BUREAU

OF THE

MASSACHUSETTS BOARD OF AGRICULTURE,

REQUIRED

UNDER CHAPTER 412, ACTS OF 1891.

JANUARY 15, 1895.

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JAN 31 1895

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Commonwealth of Massachusetts.

OFFICE OF THE SECRETARY, BOSTON, Jan. 15, 1895.

Hon. GEORGE V. L. MEYER, *Speaker, House of Representatives.*

SIR:—I have the honor to transmit herewith, for the use of the Legislature, the fourth annual report of the Dairy Bureau of the Massachusetts Board of Agriculture, required under chapter 412, Acts of 1891.

Very respectfully,

WM. M. OLIN,
Secretary.

MASSACHUSETTS
STATE HOUSE
BOSTON
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DAIRY BUREAU — 1894-1895.

C. L. HARTSHORN, WORCESTER, *Chairman.*

GEO. L. CLEMENCE, SOUTHBRIDGE.

D. A. HORTON, NORTHAMPTON.

Executive Officer.

W. R. SESSIONS, *Secretary of the State Board of Agriculture.*

Assistant and Acting Executive Officer, appointed by the Governor.

GEO. M. WHITAKER, BOSTON.

REPORT OF THE DAIRY BUREAU.

To the Senate and House of Representatives of the Commonwealth of Massachusetts.

The third year of the existence of the Dairy Bureau has witnessed no change in the membership of the Bureau or its executive officers. The work has continued along the general lines indicated by previous reports, but extended and broadened as a result of increased experience. Additional workers have been employed in both the educational and police departments. But there comes a time when the expansion due merely to the increased effectiveness of greater experience must cease. It costs money to employ lecturers, agents, chemists and others. As we said last year, \$4,000 is a very small sum for the duties imposed on us by statute. In the educational field there is need of additional work, particularly at the present time, when the Cattle Commissioners are doing so much to prevent the spread of tuberculosis; their work is only half done if it is not supplemented by the gospel of cleanliness, pure air and plenty of sunlight. In our report for 1892 we said that the keeping qualities of milk depend on cleanliness; but besides this the germs of disease are kept in abeyance by wholesome food, air, sunlight and clean stables. Then in our police work we can keep several agents profitably employed all of the time. We have been unable to give any attention to the enforcement of the milk laws, but could do much in this direction, to the ultimate advantage of the consumer and producer. We renew our suggestion of last year, that the appropriation for the Bureau be increased, with a repeal of the requirement that the Board of Health expend a majority of its funds on dairy products, — with this object in view: that the Bureau should prosecute commercial frauds, while the

Board of Health should be unhampered in its health work. An increased appropriation will not mean necessarily increased burden on the tax payers, because much will be returned in fines. At present nearly half of our appropriation goes back to the public in that way. If we are given more funds for enforcing the dairy laws, there will be more fines. We have expended all our appropriation this year, and yet have seen much which ought to have been done, but which we were obliged to omit. We recommend that the amount be increased to \$7,000.

COLORED OLEOMARGARINE "AN OFFENCE AGAINST SOCIETY."

The great event of the year has been the decision of the national supreme court that the Massachusetts "anti-color" law "is not repugnant to the commerce clause of the constitution." The court said:—

It is within the power of a State to exclude from its markets any compound manufactured in another State which has been artificially colored or adulterated so as to cause it to look like an article of food in general use, and the sale of which may, by reason of such coloration or adulteration, cheat the general public into purchasing that which they may not intend to buy. The constitution of the United States does not secure to any one the privilege of defrauding the public. The deception against which the statute of Massachusetts is aimed is an offence against society; and the States are as competent to protect their people against such offences or wrongs as they are to protect them against crimes or wrongs of more serious character. And this protection may be given without violating any right secured by the national constitution and without infringing the authority of the general government. A State enactment forbidding the sale of deceitful imitations of articles of food in general use among the people does not abridge any privilege secured to citizens of the United States, nor, in any just sense, interfere with the freedom of commerce among the several States.

The judiciary of the United States should not strike down a legislative enactment of a State—especially if it has direct connection with the social order, the health and the morals of its people—unless such legislation plainly and palpably violates some right granted or secured by the national constitution, or encroaches upon the authority delegated to the United States for the attainment of objects of national concern.

This case was an appeal from the decision of the Massachusetts supreme court. This Commonwealth was represented before the national supreme court by ex-Attorney-General Hon. A. E. Pillsbury, who made a remarkably able argument, — one which has attracted much attention in other States as well as in Massachusetts. The chances were considered somewhat against his contention, because the court had decided that local laws could not prohibit the sale of intoxicating liquors in the original package as brought from some other State. On this decision the oleomargarine interests expected to defeat our law. Mr. Pillsbury maintained that, as this law prohibited the sale of an *imitation product* rather than a distinct or original article, the cases were not parallel, and that the fundamental law of the land has enough of State rights to allow States to regulate and even prohibit the sale of imitations. The national supreme court took this view of the case. The decision is not only of much importance in this State, but is of inestimable value in many other States; they are thanking Massachusetts for her pioneer work and for the ability of her legal representative. The decision is also of importance in establishing a valuable principle in the interplay of State and national governments. As this decision was not handed down until December 10, it has as yet been of little advantage to us, and there has not been enough time for the oleomargarine interest to decide on a definite policy.

Some seem disposed to accept this decision, and are putting on the market an article so light in color that it is not an imitation of the average of butter, though it is an imitation of very pale butter. Others are inclined to fight the law yet further by quibbling over the expression “pure butter” and its color. They claim that pure butter is butter without any artificial coloring matter, that its natural color is very light; that the natural color of oleomargarine is a bright yellow, and therefore that oleomargarine is not an imitation of pure butter. If this argument of a part of the oleomargarine people is sound, it proves that the light-colored goods of the other part are an imitation of pure butter, and hence illegal. It has been seriously maintained that butter from fancy cows fed unusual and costly foods may be

bright yellow, but that such an article is so exceptional and rare that it could not have been meant by the Legislature in alluding to "pure butter."

OTHER DECISIONS.

In a case against Charles H. Russell, for exposing for sale an imitation of yellow butter, his defence was that he exposed for sale the oleomargarine in such a manner as to advise all consumers of its real character. The State supreme court says:—

The proviso that allows the sale of oleomargarine "in such separate and distinct form and in such manner as will advise the consumer of its real character, free from coloration or ingredient that causes it to look like butter," only saves such oleomargarine as is free from coloration or ingredient that causes it to look like butter. The statute did not intend to allow oleomargarine to be made or sold when so colored, whether the particular purchaser was advised of its real character or not.

In a case for delivering oleomargarine made in imitation or semblance of pure butter from a wagon without the proper signs, the defence claimed that there are two kinds of oleomargarine, as recognized by the anti-color law, and that the kind delivered was not in imitation of pure butter. The court decided:—

This statute was not intended to draw fine distinctions between kinds of oleomargarine which all resemble each other, but it requires that every one who thus delivers oleomargarine of whatever sort shall carry along with him upon his vehicle a public notice that he is licensed to sell oleomargarine,—in other words that he shall go under his true colors.

ENFORCEMENT OF THE LAW.

This work has been hampered by the uncertainty during most of the year about the anti-color law; but the other laws have been prosecuted with vigor, as two agents have been at work most of the time collecting evidence. As heretofore, we have done nothing in Boston, that field being so well worked by Dr. Harrington, the city milk inspector, and nothing has been done with the milk laws.

The following is the statistical report of our work : —

Number of inspections,	716
Number of samples taken,	388
Number of cases in court,	104

Of these the results were as follows : —

Guilty,	68
Acquitted,	32
Nolo,	3
Nol. pros.,	1
Total,	<hr/> 104

Of the 32 cases acquitted, 10 were lost by contradictory evidence, 11 on technicalities.

The causes for action were as follows : —

Serving oleomargarine for butter in restaurants,	28
No signs in stores,	21
Selling oleomargarine when butter was called for,	17
Lack of proper signs on tubs,	15
No mark on wrapper,	14
No municipal license,	9
Total,	<hr/> 104

This is twice as much as we have done in any previous year. Our policy has been to secure compliance with the laws with as little distress or seeming persecution as possible ; and no objections have been raised to putting cases on file when the judge was satisfied that good reasons therefor existed. Fines aggregating nearly \$2,000 have been imposed.

MILK INSPECTORS.

The statutes give town and city milk inspectors concurrent jurisdiction with the Dairy Bureau ; but the report of their work is only to the local authority, and hitherto there has been no means of presenting this information to a larger constituency. In many cases these local inspectors get only a nominal salary, and hence do but little aggressive work. We have endeavored to co-operate and work with them to mutual advantage, and we are indebted to many inspectors for much information and assistance. Their work is for the

most part confined to the milk laws. The best work is done in Boston, where ample funds warrant the securing of excellent ability. From Dr. Harrington's last published report we extract the following information:—

Number of samples of milk examined,	13,623
Number of samples of butter and oleomargarine,	899

During the year complaints were entered in court as follows:—

For milk not of good standard quality,	142
For milk not of good standard quality (restaurant cases),	125
For skimmed milk not of good standard quality,	3
For adulterating milk with annato, caramel or boracic acid,	23
For violating license law,	18
For sales of oleomargarine not properly marked,	48
For violation of the oleomargarine license law,	17
For oleomargarine wagons not properly marked,	9
For exposing oleomargarine in stores without signs,	5
For sales of oleomargarine as butter,	51
For sales of imitation butter,	3
For serving oleomargarine in restaurants without notice to guests,	109

The Cambridge inspector, Dr. F. A. Dunbar, reports 1,882 samples of milk collected, of which 262 were below standard quality; 179 warnings were sent out; 75 samples of butter were purchased, of which 3 proved to be oleomargarine. The inspector reports that the quality of milk procured from stores and teams is on the whole improving; skimming and watering constitute the usual forms of adulteration.

The Lowell inspector, Thomas O. Allen, reports 1,258 milk inspections, with 26 warnings, and 17 complaints for having in possession, with intent to sell, milk not of good standard quality; convictions, 15.

The Lynn inspector reports 2,236 inspections of milk, with 18 complaints in court, resulting in 17 convictions.

The Holyoke inspector, James K. Morrill, reports 58 inspections of milk and 1 prosecution.

H. M. Hartshorn of Malden reports 136 inspections of milk and 1 prosecution. He recommends a law which should establish a legal standard for light cream to be sold

in packages of not less than one gallon, and another for small packages of heavier cream for family use. He reports a continual increase in the cream business.

The Worcester inspector, J. P. Streeter, reports 138 samples of milk taken, of which only 3 were below standard.

In New Bedford Dr. D. C. Ashely took 650 samples of milk, and 1 complaint was made after a warning. Another conviction was for feeding swill.

In Chelsea the milk inspector took 950 samples; issued 30 warnings; 15 cases were taken into court and 9 convicted.

NEED OF LAW.

Another year's experience convinces us more than ever of the need of laws to regulate the sale of imitation butter, and we renew the suggestions of previous reports. The word "imitation" conveys the idea of deceit and imposition, and the actual business comes as close as is possible to the line between honesty and dishonesty when it does not actually cross over. The temptation to deceive is strong and always present. "Butterine," the name now coming to be generally used (although the national law uses the word "oleomargarine"), is significant of deception. The gradual abandonment of the word "oleomargarine" and the substitution therefor of "butterine" speaks volumes for the nature of the business. In England the use of the word "butterine" is prohibited by law, and we recommend it here. In one large English city the Board of Trade condemned the use of such affixes as "ette" and "ine" for textile fabrics, because of their deceptive nature. For the purpose of uniformity in existing laws, and to prevent the raising of any question growing out of an apparent lack of harmony, we recommend that section 21 of chapter 56 of the Public Statutes be declared applicable to all subsequent legislation.

EDUCATIONAL.

The assistant executive officer has spoken at public meetings 37 times, — chiefly upon milk, its composition, variation, keeping qualities and kindred topics. When the im-

portance of the meeting would warrant, additional speakers have been employed. Professor Conn of Connecticut, one of the most advanced bacteriologists of the age, came to Massachusetts under the auspices of the Bureau, to explain to a meeting of butter makers his experiments and conclusions. Experiments have been tried at the West Dudley creamery with some of his culture, at the suggestion of the Bureau.

BABCOCK MILK TESTER.

Work in illustrating the importance of the Babcock milk tester has continued. Much effort has been expended in impressing the fact that milk should be valued by the amount of solid matter that it contains,—the Babcock tester furnishing an accurate, cheap and simple means of ascertaining this information. As a result of this influence, several agricultural societies have based their milch-cow premiums in a measure on the quality of the cow's product. During the year the acting executive officer has tested 448 samples; 5 more have been referred to a chemist for fuller examination. Most of these tests were made publicly, as object lessons in the course of addresses on the character of milk.

Some of these samples were taken for the purpose of studying abnormal conditions. For instance, a sample from a sick heifer from a fine butter family tested as low as 1.8 per cent. of fat. The milk from the top of a can tested 8.2 per cent. of fat, while that from the bottom of the same can tested only 2 per cent. Milk from strippings and the last of milkings ranged from 7 to 12 per cent. The following is the result of the ordinary samples:—

2.6 and 3.0 per cent. of fat,	. . . .	1 per cent. of samples.
3.2 and 3.4 per cent. of fat,	. . . .	8 per cent. of samples.

[Below the legal standard, 9 per cent. of samples.]

3.6 and 3.8 per cent. of fat, on the line of the		
legal standard,	. . . .	20 per cent. of samples.
4.0 and 4.2 per cent. of fat,	. . . .	18 per cent. of samples.
4.4 and 4.6 per cent. of fat,	. . . .	13 per cent. of samples.
4.8 and 5.0 per cent. of fat,	. . . .	13 per cent. of samples.
5.2 and 5.4 per cent. of fat,	. . . .	14 per cent. of samples.
5.6 and 5.8 per cent. of fat,	. . . .	7 per cent. of samples.

5.8 and 6.0 per cent. of fat,	. . . .	3 per cent. of samples.
6.1 and 6.2 per cent. of fat,	. . . .	3 per cent. of samples.
6.4 and 6.8 per cent. of fat,	. . . .	2 per cent. of samples.

[Above the standard, 73 per cent. of samples.]

Samples of cream tested have ranged from 14.6 per cent. to 20 per cent. of fat. The buttermilk tested averaged .3 per cent. of fat, and the skimmed milk ranged between .8 and .6 per cent.

In one instance a visit was made to a farm whose proprietor was having trouble with the Boston milk contractors because the milk produced by him was below the standard. Each cow in the herd was tested, with the following result:—

No. 1,	2.4 per cent.	No. 7,	3.2 per cent.
No. 2,	2.6 “	No. 8,	3.3 “
No. 3,	2.8 “	No. 9,	3.6 “
No. 4,	2.8 “	No. 10,	3.8 “
No. 5,	3.0 “	No. 11,	4.0 “
No. 6,	3.0 “	No. 12,	4.0 “

The average of the mixed milk of the herd was 3.1 per cent.

The Bay State Agricultural Society in June offered a prize for the milch cows which would produce the greatest amount of milk solids in two days. The testing was to be done at home, free from the distracting influences of the average cattle show. This was a decidedly advance step in agriculture, and one in keeping with the aims of the Bay State Society. The Massachusetts Society for Promoting Agriculture offered to help out on the expense of the premiums, and the assistant executive officer of the Dairy Bureau offered to do the work of testing the milk. This novel and educational offer did not attract as much attention as its merits deserved, and it was hard work to secure five entries; only one was ready for examination during the summer and fall before the executive officer's increasing duties of the early winter precluded the attention to this extra work. The Guernsey herd of Herbert Merriam, Esq., of Weston, was tested, with the following result:—

	Pounds Milk.	Per Cent. Solids.	Pounds Fat.	Pounds Total Solids.
Polly of Concord, . . .	32.81	15.50	1.82	5.09
Golden Lily, . . .	37.75	15.03	1.97	5.68
Polly of Lincoln, . . .	37.06	15.32	2.00	5.69
Rose of Weston, . . .	40.64	14.95	2.06	6.06
Weston Lily, . . .	43.50	14.75	2.15	6.40
Average, . . .	—	15.11	—	5.78
Total, . . .	191.76	—	10.00	—

THE MILK SUPPLY

of the cities of the Commonwealth is one of the most important branches of the food question, both commercially and hygienically. The milk contractors of Boston, whose business includes the “greater Boston,” and is estimated at three-quarters of the entire supply, report the business of 1894 in eight and one-half quart cans as follows : —

	Received.	Sold.	Surplus.
January,	768,883	617,674	151,209
February,	719,864	564,148	155,716
March,	842,882	642,637	200,245
April,	861,458	622,907	238,551
May,	969,331	661,223	308,108
June,	937,188	696,578	240,610
July,	837,425	699,692	137,733
August,	779,766	617,220	162,546
September,	716,771	634,269	82,502
October,	779,015	637,329	141,686
November,	722,316	634,792	87,524
December,	770,548	628,952	141,596

TOTALS.

	Received.	Sold.	Surplus.
1891,	7,281,524	6,113,803	—
1892,	9,212,667	7,315,135	—
1893,	9,263,487	7,619,722	1,643,765
1894,	9,705,447	7,657,421	2,048,026

The following figures for other cities are taken from milk inspectors' reports : —

Springfield, 19,000 quarts daily, mostly furnished by three adjoining towns.

Chelsea, 10,664 quarts daily.

Malden, 11,000 quarts daily.

Holyoke, 15,387 quarts daily.

Lynn, 24,000 quarts daily, one-half coming from Portsmouth and Hampton, N. H., in cars, and one-half from dairies of adjacent towns.

MILK STANDARD.

An effort has been made each winter for several years to have the statute standard of milk reduced. Unquestionably many cows in the State produce milk that is below the standard. But it is also a fact that the milk of a great majority from all breeds contains 13 per cent. of solids, — the legal standard. The practical question is, Shall the interests of the majority be sacrificed for the minority? The present law is not perfect; under an ideal condition, all milk would be sold according to its quality; but that is impracticable at present, although we believe that ultimately, with the Babcock test more common and the people more enlightened as to milk values, this result will be reached. But this is not the real point desired by the advocates of the change as we understand it. They desire to get their 12 per cent. milk on the market at the going price, — that is, the price for the 13 per cent. milk.

One point against the present law that is used with much force is the claim that the standard hangs like a sword of Damocles above the head of the innocent farmer, liable at

any moment to descend upon him without either warning or mercy. Facts do not bear this out, however, as reference to the reports of the milk inspectors above will show. Not only do reports of many thousands of analyses from all parts of the country show that average milk contains 13 per cent. of solids, but the results of inspections reported above show that even after the milk has gone to the peddler and the stores ninety-nine samples in a hundred stand the test. Mr. Clemence of the Bureau has been studying the question on his own herd, and gives below the result of five tests of the mixed milk of his cows—grade stock of no particular breed.

DATE.	Cows.	Quarts Milk.	Daily Feed.	Per Cent. of Fat.
Aug. 1,	20	208	Green oats and peas morning and night, dry hay at noon, 2 quarts gluten meal and 4 quarts bran.	4.4
Sept. 1,	21	212	Sweet corn fodder morning and night, hay at noon, grain the same as above.	4.2
Oct. 1,	21	188	Corn fodder and cabbage leaves morning and night, hay at noon, with grain same as above.	4.2
Nov. 1,	20	205	Cabbage leaves in two feeds, hay at noon, with grain same as above.	4.3
Dec. 1,	20	192	Corn and ensilage morning and night (forty pounds a day to each cow), six pounds of hay at noon, and grain the same as above.	4.2

When milk has 3.75 per cent. of fat it is without much doubt up to the standard, so that this milk, if a complete analysis were made, would probably test from 13.50 to 14 per cent. solids.

Financial Statement.

Appropriation by Legislature of 1894, . . . \$1,000

C. L. Hartshorn, Chairman : —

Travelling and necessary expenses,	. . . . .	\$14 00
Services,	. . . . .	60 00

G. L. Clemence : —

Travelling and necessary expenses,	\$62 50
Services,	65 00

D. A. Horton : —

Travelling and necessary expenses,	63 00
Services,	60 00

G. M. Whitaker, assistant executive officer, travelling and
necessary expenses,

Agents, services and expenses,	268 18
Chemical work,	1,870 76
Court attendance,	1,083 50
Educational work,	115 00
Printing,	195 27
Supplies,	57 76
	55 03

\$4,000 00

Respectfully submitted,

GEO. M. WHITAKER,

Assistant and Acting Executive Officer.

Approved and adopted as the report of the Dairy Bureau.

C. L. HARTSHORN.

GEO. L. CLEMENCE.

DWIGHT A. HORTON.

Boston, Jan. 15, 1895